

Remarks

Claims 1-3 and 5-17, 19, and 20 are now pending in this application. Applicants have amended claims 1-3, 10, 11, 14-16, and 19 and cancelled claim 18 to clarify the claimed invention. Applicants respectfully request favorable reconsideration of this application.

The Examiner rejected claims 1-3 and 5-20 under 35 U.S.C. § 112, first paragraph. Applicants have amended the claims to recite "single controller" rather than "single safety controller". Accordingly, Applicants respectfully request withdrawal of the rejection under 35 U.S.C. § 112, first paragraph.

The Examiner rejected claims 10-12 and 14 under 35 U.S.C. § 112, second paragraph. Applicants have amended claims 10 and 11 to depend from claim 1 rather than claim 4. Additionally, Applicants have amended claim 14 to ensure that antecedent basis exists for all terms. Accordingly, Applicants respectfully request withdrawal of the rejection under 35 U.S.C. § 112, second paragraph.

The Examiner rejected claims 1-3 and 5-20 under 35 U.S.C. § 102(b) as being anticipated by Schenk.

Schenk does not disclose the invention recited in claim 1 since, among other things, Schenk does not disclose a method that includes attaching a safety-hardware unit and an input/output unit to a single controller. Additionally, Schenk also does not disclose a safety-

hardware unit that is used only for safety-critical control. Furthermore, Schenk does not disclose verifying a validity of bus communication with the safety-hardware unit.

Schenk only discloses connecting fail-safe input/output modules to a controller. Schenk does not suggest attaching a safety-hardware unit to a single controller. The Examiner asserts that Schenk discloses that the input/output units are provided with a safety protocol. This demonstrates that Schenk does not disclose attaching a safety-hardware unit and an input/output unit to a single controller.

Additionally, claim 1 recites that the safety-hardware unit verifies a validity of bus communication. On the other hand, it appears as if the fail-safe input/output modules might verify a validity of bus communication, providing further evidence that Schenk does not disclose attaching a safety-hardware unit and an input/output unit to a single controller. It follows that Schenk also does not disclose the invention recited in independent claim 15, which includes a single main central processing unit, a safety-hardware unit attached to the single controller, and an input/output unit connected to a bus of the single controller.

Additionally, Schenk discloses a standard CPU that already is a safety controller. Schenk discloses a system that includes a safety controller that is one physical unit. On the other hand, the claimed invention includes attaching a safety-hardware unit to a controller. Schenk discloses that safety functionality is obtained in a standard CPU by fault control measures at a hardware level and a safety function level. Therefore, it is clear that the standard CPU includes safety hardware rather than attaching a safety-hardware unit to a controller. Along these lines, as stated

in the paragraph numbered 3 on page 1 of Schenk, "One CPU module should already achieve safety integrity level 3". In view of the above, not only does Schenk not disclose the claimed invention, but it does not make sense to connect a safety-hardware unit to a controller that already is a safety controller.

As discussed in the specification, advantages of such a method include increasing a safety level of the control system. The safety-hardware unit makes it possible to utilize a controller used for non-safety related functions by not using the safety-hardware unit. By not utilizing the safety-hardware unit for non-safety related functions, the controller may be less costly and faster than if a full safety level use of the control system. The safety-hardware unit can permit a controller not originally installed for safety related control.

Additionally, by attaching the safety hardware unit to a single controller, the safety hardware unit can monitor the operation of the single controller. The safety hardware unit is coupled to the controller and can, for example, monitor input and output signals to/from the controller to verify proper operation. Any deviation from an expected pattern of signals can be detected by the safety hardware unit. Thus, a higher level of safety is achieved without having to use redundant controllers.

In view of the above, Schenk does not disclose all elements of the invention recited in claims 1-3 and 5-20. Since Schenk does not disclose all elements of the invention recited in claims 1-3 and 5-20, the invention recited in claims 1-3 and 5-20 is not properly rejected under 35 U.S.C. § 102(b). For an anticipation rejection under 35 U.S.C. § 102(b) no difference may exist between the

claimed invention and the reference disclosure. *See Scripps Clinic and Research Foundation v. Genentech, Inc.*, 18 U.S.P.Q. 841 (C.A.F.C. 1984).

Along these lines, anticipation requires the disclosure, in a cited reference, of each and every recitation, as set forth in the claims. *See Hodosh v. Block Drug Co.*, 229 U.S.P.Q. 182 (Fed. Cir. 1986); *Titanium Metals Corp. v. Banner*, 227 U.S.P.Q. 773 (Fed. Cir. 1985); *Orthokinetics, Inc. v. Safety Travel Chairs, Inc.*, 1 U.S.P.Q.2d 1081 (Fed. Cir. 1986); and *Akzo N.V. v. U.S. International Trade Commissioner*, 1 U.S.P.Q.2d 1081 (Fed. Cir. 1986).

In view of the above, the reference relied upon in the office action does not disclose patentable features of the claimed invention. Therefore, the reference relied upon in the office action does not anticipate the claimed invention. Accordingly, Applicants submit that the claimed invention is patentable over the cited reference and respectfully request withdrawal of the rejection based on the cited reference.

In conclusion, Applicants respectfully request favorable reconsideration of this case and issuance of the notice of allowance.

If an interview would advance the prosecution of this application, Applicants respectfully urge the Examiner to contact the undersigned at the telephone number listed below.

The undersigned authorizes the Commissioner to charge insufficient fees and credit

overpayment associated with this communication to Deposit Account No. 22-0261.

Respectfully submitted,

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